

## SECTION 02502 - STANDARDS OF ROADWAY CONSTRUCTION

### PART 1 - GENERAL

1.1 Road construction shall conform to the following requirements and standards:

A. Streets, General

1. Streets and alleys shall be graded, surfaced, and improved to the dimensions required by the cross-sections and the work shall be performed in the manner prescribed in Section 02500 and the Indiana Department of Transportation Standard Specifications (INDOTSS).
2. Prior to placing the street and alley surfaces, adequate subsurface drainage (underdrains) for the street shall be provided by the Subdivider. Underdrain pipe shall conform to Section 02500.
3. Bituminous asphalt paving mixes shall comply with specifications contained in Section 02500.
4. Before any bond covering a street installation is released, the Westfield Public Works Department (WPWD) or duly authorized representative may request that core borings of the street be provided, at the Subdivider's expense, for thickness and/or compaction determination.
5. Prior to the acceptance of asphalt streets, the Subdivider shall employ and pay for the services of an independent testing laboratory to take cores at selected locations and perform Marshall stability, flow and density test, and percent of compaction determination on completed asphalt work if so directed by the WPWD or duly authorized representative.
6. Asphalt surface layer shall be placed immediately after the binder layer is installed.
7. All traffic control devices shall comply with guidelines and requirements of the current edition of the Indiana Manual on Uniform Traffic Control Devices.
8. No manhole castings or utility valve castings shall be permitted within pavement, curb or sidewalk limits. Design considerations shall be made to ensure that the castings are located outside of these areas.

## B. Streets, Adjacent Roadway Improvements

1. Developers shall be responsible for improvements to the existing roadway(s) that front their property. These improvements shall include, but are not limited to, the following items:
  - a. Construction of acceleration lanes, deceleration lanes, and passing blisters for each entrance or street intersection. Refer to WSD 02500-013.
  - b. In order to construct adequate passing blisters, right-of-way shall be obtained which has a width consistent with the most current accepted Thoroughfare Plan. A minimum of 500 feet full width right-of-way centered on the entrance or street intersection shall be obtained. The developer is responsible for the purchase of the right-of-way, at fair market value. The City will offer assistance in obtaining right-of-way if the initial purchase offer is unsuccessful. A written offer to the property owner is required.
  - c. The existing two (2)-lane roadway(s) that front the property shall require a full pavement width 1-1/2" mill and resurface. The required resurfaced area shall extend a minimum of 10' beyond the acceleration and deceleration lanes and passing blister, whichever is greater.
2. Additional improvements may be required depending on field conditions and as determined by the WPWD or designee.

## C. Subgrade for Street Pavements

1. Preparation
  - a. After all earth work is substantially complete and all drains installed, the subgrade shall be brought to the lines and grades shown on the plans.
  - b. Subgrade Treatment, Type IB or Type IC is required for all pavement subgrades. Refer to INDOTSS 207.04 for additional details.
    - (1) If Subgrade Treatment, Type IB is the chosen method, refer to INDOTSS 215.03 for testing and design requirements. Cement may be required in lieu of lime.

(2) No equipment, including pickup trucks or cars, shall run over the treated areas for a minimum of 72-hour curing period.

(a) If this curing period is not fully met, Geogrid shall be required over the entire subgrade area throughout the treated section, unless otherwise approved by the WPWD Engineer. It is the developer's/contractor's responsibility to properly barricade off these treated areas to ensure the 72-hour curing period is upheld.

(b) Per INDOTSS 215.05, no chemical modifications will be allowed unless the soil has a minimum temperature of 45 degrees, measured 4 inches below the surface, and the ambient air temperature shall be rising.

c. Unless otherwise provided, the upper six (6) inches of all subgrade shall be uniformly compacted to at least 95 percent standard density as determined by the provisions of AASHTO, T99, "Compaction and Density of Soils". During subgrade preparation and after its completion, adequate drainage shall be provided at all times to prevent water from standing on the subgrade. Subgrades shall be so constructed that it will have uniform density throughout. After compaction and final grading, the subgrade shall be finished with a three-wheel roller weighting not less than ten (10) tons. For areas not accessible to the roller, the required compaction shall be obtained by using mechanical tampers.

d. All soft yielding or otherwise unsuitable material which will not compact properly shall be removed. All rock encountered shall either be removed or broken off to conform to required cross sections. Any holes or depressions resulting from the removal of such unsuitable material shall be filled with approved material and compacted to conform to the surrounding subgrade surface. No placement of pavement shall be permitted on uninspected or unapproved subgrade and, at no time, when the subgrade is frozen or muddy. No hauling shall be done nor equipment moved over the subgrade when its condition is such that undue distortion results. If these conditions are present, the subgrade shall be protected with adequate

plank runways, mats, or other satisfactory means if hauling is to be done thereon.

- e. The subgrade shall be prepared sufficiently in advance to facilitate proper inspection of final elevations and compactions by the WPWD or duly authorized representative.

- f. Refer to Section 02222 for all Utility Construction requirements.

D. Pavement Section - Typical pavement sections shall conform to the requirements in Section 02500. The use of alternative cross sections shall be approved by the WPWD Engineer.

E. Underdrains

- 1. Underdrain material shall be 6-inch perforated double wall smooth bore subsurface drain pipe. It shall be cleaned and televised prior to acceptance.

F. Curbs and Gutters

- 1. Developers shall provide curbs and gutters on each side of the street in proposed development. Uncurbed roadways will not be permitted. Alley construction may be an exception to this requirement.
- 2. Curbs and gutters shall be in accordance with WSD 02500-008. As an alternate, curb sections which comply with INDOTSS will be permitted upon approval of the WPWD Engineer.
- 3. All curb and gutter sections placed on Primary Arterials, Secondary Arterials, or Collectors shall be of the barrier type. Roll-type curb and gutter sections will be permitted for Local Roads and Streets.
- 4. The construction of curbs, combination curb and gutter, and integral curb and gutter shall be in accordance with these specifications and as shown on the plans and shall be in reasonably close conformance with the lines and grades shown on the plans or as directed by a Professional Engineer licensed in the State of Indiana.
- 5. Excavation for curbs shall be made to the required depth and the subgrade or base upon which the curb is constructed shall be

compacted to a firm, even surface to not less than 95% of maximum dry density as determined in accordance with AASHTO T99.

6. Concrete for curbs shall be Class A, 4,000 psi.
7. The curbs shall be constructed by the use of wood or metal forms, or a curb slip form machine. Forms, if used, shall be straight, free from warped or bent sections, and shall extend for the entire depth of the curb and shall be securely held in place so that no deviation from alignment and grade will occur during placement of concrete. The concrete shall be consolidated by vibration or other acceptable methods. The top of the curb shall be floated smooth and the top outer corner rounded to a 1/4 inch radius.
8. The face, top, and gutter of curbs shall not have deviations or irregularities of more than 1/4 inch when checked with a 10 foot straightedge.
9. Construction joints shall be placed at 10 foot intervals, unless otherwise shown or directed by a Professional Engineer licensed in the State of Indiana. The joint shall be uniform, of 1/8 to 1/4 inch in width, and to a depth of approximately 2-1/2 inches. The joint may be formed using concrete tools, saw cut or formed by approved removable strips providing a straight joint at right angles to the length of curb. If tooled joints are performed, additional saw cutting shall be required to a depth of 2-1/2 inches minimum. Construction joints shall be formed around all abutting structures such as inlets. Expansion material shall be required.
10. Curing materials shall be applied to exposed surfaces and sides of newly placed concrete within 30 minutes after the finishing operations have been completed in accordance with INDOTSS 504.04.
  - a. Only Liquid Membrane-Forming, Visible curing compounds shall be used. Clear materials shall not be permitted.
11. If existing curb is to be removed and replaced with new curb or new curb extended from existing curb, the existing curb shall be removed to the nearest joint. Reinforced pinning shall be required as follows:
  - a. Minimum epoxy coated rebar size: #5
  - b. Number of bars: 2

c. Minimum depth of embedment: 6"

- (1) This embedment shall be 2-part epoxied on the existing curb side

12. During the placement of new concrete curb, utility marking shall be embossed into the top of the curb. The marking shall be a 2" high letter stamping tool and be a "D" for a subsurface drain. The stamp shall be placed into the concrete before the concrete sets up. The letters shall be located perpendicular to the utility feature that is being marked. Any stamp that is missed during installation of curb must be sandblasted in to the curb. The letters shall be located perpendicular from the utility feature that is being marked.

#### G. Sidewalks and Trails

1. Sidewalks shall be at least six (6) inches thick at drives and at least four (4) inches thick at all other locations within the subdivision. All Common Area sidewalk formwork shall be inspected prior to placement of any concrete. Any Common Area sidewalk placed without inspection may be removed at the discretion of the Inspection Supervisor.
2. Perimeter and Multi-use trails shall be at least eight (8) feet wide adjacent to Primary Arterials, Secondary Arterials, and Collectors and in commercial, industrial or multi-family developments and residential subdivision perimeters. Maximum grade shall not exceed 5% unless approved by the WPWD Engineer. Refer to WSD 02505-001 and 002 for additional details.
3. Sidewalks shall be at least five (5) feet wide at all other locations. Sidewalks shall be concrete in accordance with Section 02500 and 604 INDOTSS. Expansion joints shall be located every 48 feet and control joints every six (6) feet. All sidewalks shall be placed on properly prepared and compacted subgrades in accordance with this section.
4. Curb ramps, sidewalks, and multi-use trails shall comply with the most current INDOT and ADA/PROWAG requirements. Ramps shall not be permitted in driveways.
5. When sidewalks or trails cross major street intersections within or adjacent to a subdivision, necessary traffic control devices such as painted crosswalks and signs shall be installed at the subdivider's expense at the discretion of the Westfield City Council or the WPWD or designee.

6. If not located within public rights-of-way, easements in favor of the City of Westfield of at least ten (10) feet in width shall be provided for sidewalks, pedestrian trails, or bicycle trails.
7. Sidewalks shall consist of a Compacted Aggregate No. 53, Base to a depth of 3 inches and 4 inches of Concrete. Concrete sidewalk through driveways shall be 6 inches thick. Concrete shall be Class "A", 4,000 psi.
8. Compact subbase to not less than 95% of maximum dry density, as determined in accordance with AASHTO T99.
9. Proportion, mix, and place concrete as specified in INDOTSS Sections 604 and 702. Walks shall have a broom surface finish. Edge all outside edges of walk and all joints with a 1/4 inch radius edging tool.
10. Unless otherwise shown on the drawings, walks shall be divided into sections not more than five feet in length by dummy joints formed by a jointing tool with a 1/4 inch radius.
11. Sidewalks and handicap ramps shall conform to the most recent updated ADA/PROWAG standards. All handicap ramps shall be properly identified on the as-built drawings submitted to the WPWD.
12. Form construction joints around all abutting structures and appurtenances such as existing manholes, utility poles, hatches, and hydrants, contractor shall install 1/2 inch thick pre-molded expansion joint filler in construction joints. Expansion joint material shall extend for the full depth of the sidewalk.
13. If existing sidewalk is to be removed and replaced with new sidewalk or new sidewalk extended from existing sidewalk, the existing sidewalk shall be removed to the nearest joint of suitable quality or as directed by the WPWD. Reinforced pinning may be required described in this section.

H. Easements - Whenever possible, easements for poles or underground conduits for electrical power, or communication lines shall be provided along rear lot lines.

#### I. Landscaping

1. Any landscaping to be installed within the Right-of-Way shall be reviewed prior to installation.
  - a. Onsite Pre-Con shall take place prior to any installation to ensure the species defined in the plans coordinate and match what is being installed. Tags shall remain on all trees to assist in the identification by WPWD Inspector. Any installed landscaping without approval by WPWD Inspector shall be removed at Contractor's expense.
  - b. Developer shall submit for approval the Landscaping plans to Duke Energy if placed within proximity of Duke overhead facilities.
- J. Plans - Construction plans for improvements to be installed shall be furnished in accordance with the specifications of the WPWD and/or, when appropriate, to the Hamilton County Highway Department, CEG, and other necessary Agencies. Such plans must receive all appropriate approvals before improvements are installed. Upon completion of streets and alleys improvements, as-built plans in State Plane coordinates shall be filed with the WPWD after the WPWD Inspector's punchlist has been completed and, when appropriate, to the proper governing body of Hamilton County. All construction plans shall include the following:
  1. Horizontal geometry of each proposed street, with centerline and curb radii shown.
  2. The profile of each proposed street, with grades indicated, and lengths of vertical curves.
  3. The cross-section of each proposed street, showing the width of pavement, the location and width of sidewalks, and the location and size of utility mains.
- K. Inspection - Prior to starting any construction, arrangements shall be made for inspection of work to ensure compliance with plans and specifications approved by the WPWD or, when appropriate, the Hamilton County Highway Department, CEG, and other necessary Agencies.
- L. All construction must be approved by the WPWD and notice of construction must be given to the WPWD, or duly authorized representative, 48 hours prior to beginning work. All approved Utility plans shall be submitted to WPDW in advance of the 48 hour notice.
- M. Allowable Modifications - Where unusual or exceptional factors or conditions exist, the WPWD may allow minor modifications of any provision of this Section. When such modifications are allowed, a



detailed written statement of the reasons for such modifications shall be attached to all copies of construction plans.

PART 2 - PRODUCTS

Not Applicable

PART 3 - EXECUTION

Not Applicable

PART 4 – FIGURES

Not Applicable

END OF SECTION 02502